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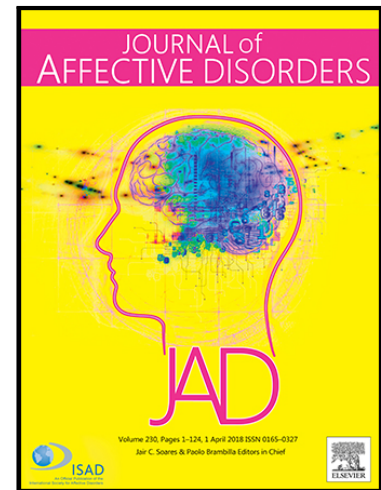
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Physical and mental health impact of COVID-19 on children, adolescents, and their families: The Collaborative Outcome study on Health and Functioning during Infection Times - Children and Adolescents (COH-FIT-C&A)

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Highlights

- The Collaborative Outcome study on Health and Functioning during Infection Times (COH-FIT) is a global survey on COVID-19 impact to date, involving more than 230 researchers and 120 institutions across all continents
- COH-FIT is an online anonymous survey, cross-sectional at the individual level, but longitudinal at the population level, and has a multi-wave structure
- COH-FIT is available in 30 languages, deliberately including linguistic and ethnic minorities
- COH-FIT collects information on health and functioning of adults, but also of children (from 6 years old) and adolescents, via self-report and parental rating questionnaire
- COH-FIT collects both representative sample via polling agencies, and non-representative samples via snowball/non-probability recruiting strategies
- COH-FIT has been collecting over 150,000 responses from over 150 countries, of which 13,000 minors from the six continents from April 26th, 2020 to June 2021
- Take the survey at www.coh-fit.com

Abstract 250/250

Background. The COVID-19 pandemic has altered daily routines and family functioning, led to closing schools, and dramatically limited social interactions worldwide. Measuring its impact on mental health of vulnerable children and adolescents is crucial.

Methods. The Collaborative Outcome study on Health and Functioning during Infection Times (COH-FIT – www.coh-fit.com) is an on-line anonymous survey, available in 30 languages, involving >220 investigators from 49 countries supported by national/international professional associations. COH-FIT has three waves (until the pandemic is declared over by the WHO, and 6-18 months plus 24-36 months after its end). In addition to adults, COH-FIT also includes adolescents (age 14-17 years), and children (age 6-13 years), recruited via non-probability/snowball and representative sampling and assessed via self-rating and parental rating. Non-modifiable/modifiable risk factors/treatment targets to inform prevention/intervention programs to promote health and prevent mental and physical illness in children and adolescents will be generated by COH-FIT. Co-primary outcomes are changes in well-being (WHO-5) and a composite psychopathology P-Score. Multiple behavioral, family, coping strategy and service utilization factors are also assessed, including functioning and quality of life.

Results. Up to June 2021, over 13,000 children and adolescents from 59 countries have participated in the COH-FIT project, with representative samples from eleven countries.

Limitations. Cross-sectional and anonymous design.

Conclusions. Evidence generated by COH-FIT will provide an international estimate of the COVID-19 effect on children's, adolescents' and families', mental and physical health, well-being, functioning and quality of life, informing the formulation of present and future evidence-based interventions and policies to minimize adverse effects of the present and future pandemics on youth.

Journal Pre-proof

Introduction

The COVID-19 pandemic has infected over 101 million people around the world, caused over 2,180,000 deaths by January 28th, 2021.¹ Beyond pulmonary complications and deaths, the pandemic has also impacted mental and physical health of the general population, and especially of certain subgroups at risk.^{2,3} Moreover, changes in healthcare delivery have occurred worldwide.⁴ While children and adolescents are at a lower risk of contracting COVID-19, they are nevertheless impacted by indirect consequences of the pandemic and related restrictions. A recent systematic review which pooled data from over 50,000 children and adolescents across 63 studies, showed that loneliness and disease containment measures increased the risk of depression short-term, and up to 9 years after containment for other-than-COVID-19 reasons in previously healthy children and adolescents.^{5,6} One further evidence synthesis effort focusing specifically on studies after the COVID-19 breakout has shown that the pandemic affects children and adolescents differently.⁷ Rates of anxiety and relevant depressive symptoms increased from age 7-17.⁷ The largest meta-analysis published to date on the prevalence of mental health concerns during the pandemic has shown that the anxiety prevalence among children and adolescents is as high as 19% (95% confidence interval 14% to 25%, data from 22 studies), and depression as high as 15% (95%CI 10% to 21%, data from 16 studies).⁸ Besides children and adolescents of the general population, those suffering from mental disorders are in need of special adjustment of usual care during the pandemic.⁹ Furthermore, evidence suggests that children with physical conditions, such as cancer, are suffering from lower quality of care due to health system changes during the pandemic.¹⁰ Families in general, and in particular those with children or adolescents affected by a mental disorder, are struggling to cope with the pandemic-related restrictions, and in particular in managing homeschooling of their children while working from home at the same time.¹¹ Beyond the general population and service users, health services require adaptation to the current pandemic. For instance, telemedicine and use of technology increased worldwide, and are needed to cope with uneasiness of access to care, which is due both to services shifting resources to COVID-19 related care, and service users avoiding clinical contact to minimize infection risk.¹²

In this context, the Collaborative Outcome study on Health and Functioning during Infection Times (COH-FIT -www.coh-fit.com) project was launched in April 26th, 2020, aiming to measure the COVID-19 pandemic impact on well-being, mental and physical health, functioning and access to care of the general population. Specifically, COH-FIT-Children and Adolescents (COH-FIT-C&A), targets children, adolescents, their parents and families to identify subgroups of children and adolescents at increased risk of struggling during the pandemic, in order to ascertain potential modifiable risk factors to tackle and protective factors to empower, and to assess, which coping strategies are most important to successfully deal with infection spread and related restrictions. Aiming to generate possibilities to pool or, at least, compare data across large studies, COH-FIT employs the same time frame used in the Coronavirus Health and Impact Survey (CRISIS),¹³ with both projects asking about symptoms during the last two weeks at the moment of survey participation, and the last two weeks before the pandemic. Also, both survey projects collect data on

youth via both parental rating and self-report questions. While CRISIS uses more parental report, COH-FIT includes broader pediatric self-report .

Given the unprecedented disruption of daily routine and already demonstrated or highly suspected negative impact of COVID-19 on the general population, including adults, parents, children and adolescents, as well as family systems, both in the short and in the long-term, our hypothesis is that the pandemic is adversely affecting children and adolescents regarding a variety of relevant outcomes, ranging from mental to physical health, well-being and functioning. We further hypothesize that such negative impact differs across various pediatric and family subgroups in terms of type and number of affected domains, severity and chronicity of the impairment, as well as support structures, care and coping mechanisms available/utilized. For instance, depressive symptoms might have increased in adolescents, yet alcohol or other substance abuse use might have decreased. Identifying specific risk and protective factors, as well as actionable items to minimize the pandemic's impact across specific subgroup of children and adolescents will inform tailored intervention and prevention opportunities. For instance, evidence that youth affected by attention-deficit/hyperactivity disorder, autism or mental retardation are those suffering the most from the pandemic-related restrictions could provide guidance to governments, which might consider modification of the type or implementation of restrictions for these fragile populations and their families.

We also hypothesize that the self-perceived and parentally rated quality of life and functioning of youth will substantially differ, providing evidence in support of decisions on whether parental or self-rated measures should be selected for screening campaigns to identify the most vulnerable or affected subgroups during infection times. For instance, children or adolescents might not disclose the severity of their distress to their parents, especially if they are distressed too, who might therefore not be fully aware of the extent to which the pandemic is affecting their daughters' and sons' mental and physical health.

Overall, COH-FIT aims to comprehensively capture the impact of the COVID-19 pandemic on well-being, mental health, physical health, family, personal and social functioning of children, adolescents, and their families. The expectation is that the amount of collected data will inform who the most fragile groups are among children and adolescents, and what might be the actionable items to improve their health and functioning during present and future infection times.

In this article, the structure of COH-FIT-C&A is described, consisting of COH-FIT for adolescents (COH-FIT-AD) and for children (COH-FIT-C).

COH-FIT development and design

COH-FIT follows a pre-planned and published protocol (Identifier: NCT04383470). The project was initiated on April 1st, 2020, by the two co-Principal Investigators (MS, CUC). Over few weeks, a large number of world-class researchers have joined the project, reaching to date over 220 researchers from all six continents (<http://www.coh-fit.com/Collaborators>). COH-FIT is endorsed and supported by the European

College of Neuropsychopharmacology Prevention of Mental Disorders and Mental Health Promotion Thematic Working Group, the European Psychiatric Association, the World Association of Social Psychiatry and the Association for Child and Adolescent Mental Health among many other important international and national scientific associations, non-profit organizations, universities and institutions (<http://www.coh-fit.com/partners>). Website costs, and representative sample collection are entirely covered by non-profit foundations and researchers' institutions, and no funding by the industry of any kind has supported COH-FIT.

COH-FIT survey data are collected, stored and managed using the Research Electronic Data Capture (REDCap) software tool hosted at the Department of Neurosciences of the University of Padua, Italy, as well as at Charité - Universitätsmedizin Berlin, Germany.¹⁴

COH-FIT is an on-line anonymous survey (www.coh-fit.com) for adults as well as, after guardian e-consent, for adolescents (14-17years) and children (6-13years). Participants can respond via a laptop, tablet, or smartphone. COH-FIT has a multi-wave structure. Wave 1 began on April 27th, 2020 and will continue until the pandemic will be declared over by the WHO. Waves 2 and 3 will last 6-18 months and from 24 to 36 months onwards after the pandemic's official end. While it is a cross-sectional survey at the respondent level, COH-FIT is a longitudinal survey at the population level with continuous data collection during each wave, capturing responses at different infection/mortality rates, restrictions, etc.

Data and outcomes are deliberately broad to provide a fine-grained and transdiagnostic physical, emotional, behavioral and interactional picture of the pandemic's impact on children, adolescents, and families, ranging from well-being, mental health, physical health to health-service access/utilization, treatment adherence, interpersonal and family functioning, school and work performance, financial loss, emotions, sleep, etc. Moreover, instead of assessing a limited group of symptoms with validated instruments including many questions, we selected 1-2 items from validated questionnaires. For instance, instead of using the nine questions of the Patient Health Questionnaire-9¹⁵ to measure depressive symptoms, COH-FIT only uses two items (one for depressed mood, one for loss of interest). With this approach, COH-FIT aims to measure a wide transdiagnostic symptomatic profile with a limited number of questions. Specifically, COH-FIT items were extracted from PHQ-9,¹⁵ Generalized Anxiety Disorder-7,¹⁶ Post-traumatic Stress Disorder Checklist for DSM-5 (PCL-5),¹⁷ Brief Obsessive Compulsive Scale (BOCS),¹⁸ Altman Self-Rating Mania Scale,¹⁹ Prodromal Questionnaire-16.²⁰

COH-FIT has been translated into 30 languages (<https://www.coh-fit.com//take-survey/>).

Two different instruments compose COH-FIT-AD and COH-FIT-C, (Figure 1). For both COH-FIT-AD and COH-FIT-C, parental consent is needed, and parental rating on functioning and quality of life is collected. After e-consent, parents/ guardians are asked to provide information on age, gender, and presence of physical/mental comorbidities of their children/adolescent. Then, parents/guardians are asked to rate the child's/adolescent's functioning on the anchored Children's Global Assessment Scale (CGAS),²¹ and quality

of life with the Pediatric Quality of Life Enjoyment and Satisfaction Questionnaire (PQ-LES-Q).²² After parental/guardian rating, the adolescent takes the COH-FIT-AD survey, which is identical to the adult survey (COH-FIT-A) without a question regarding sexual activity. The child takes the COH-FIT-C survey, which has abbreviated/condensed content and simplified language.

Given that children/adolescents share the same household with other individuals who may be interested in participating in the survey, respondents can generate, input and store a non-identifiable 10-character password (“household code”) that can be shared with and used by all individuals living in the same household, allowing household-based analyses.

Both surveys (COH-FIT-AD/C) have an adaptive format, in that they prompt/do not prompt the respondent with additional questions depending on previous answers. Moreover, if participants want to interrupt the survey and come back to it later on, a “Return code” is generated. This code is sent automatically to an individually imputed e-mail address of preference (which is not stored in the database), requesting to rejoin and complete the saved questionnaire.

Both non-representative sampling via snowball/non-probabilistic approach and representative samples purchased via polling institutes are being collected.

COH-FIT-Children

Children aged 6-13 years can take the COH-FIT-C, which has a simpler/developmentally appropriate language, and is shorter covering only a subgroup of relevant items.

The two COH-FIT co-primary outcomes are well-being (modified version of World Health Organization – 5 (WHO-5)²³ with each item scored on a VAS 0-100 scale, rather than a six-point Likert-scale), and a composite psychopathology score, C-P-Score, composed of the following domains: anxiety, depression, post-traumatic, stress, sleep, concentration. Items composing the C-P-Score have been selected a-priori based on clinical judgement

Key secondary outcomes are the C-P-Extended Score composed of C-P-Score plus helplessness, loneliness, anger, as well as self-rated quality of life, assessed with the modified PQ-LES-Q²² rated on a VAS 0-100 scale, plus global physical health, global mental health, and global health and parentally rated C-GAS²¹ and PQ-LES-Q.²²

Secondary outcomes include frustration, anger, boredom, as well as suicidality (suicidal thoughts and attempts), number of episodes witnessing, enduring, or perpetrating aggressive behavior, substance abuse (alcohol, cannabinoids, others), gambling. COH-FIT also measures daily screen activities (social media use, gaming, watching TV or movies), as well as satisfaction with relationships and daily routine within the family, and how the child gets along with friends. Prosocial activities and resilience are further outcomes of interest. Coping strategies are ranked by the respondent by importance for successfully dealing with the coronavirus breakout. Ease and modality of access to care, and access and adherence to medications are also

asked. In addition to analyzing the child's responses by themselves, we will also compare the child's and parental ratings on the difference in PQ-LES-Q.

COH-FIT-Adolescents

Adolescents aged 14 to 17 can participate in COH-FIT-AD.

Co-primary outcomes of COH-FIT-AD are well-being, measured with WHO-5²³ as in COH-FIT-C, and a composite psychopathology measure, "AD-P-Score" that is composed of the same items composing the co-primary P-Score outcome in adults (COH-FIT-A).²⁴ Briefly, domains composing the P-score in COH-FIT-A were selected based on their correlation with the respective full validated questionnaires (Pearson correlation threshold $r \geq 0.5$), among anxiety, depression, post-traumatic symptoms, psychosis, mania, obsessive-compulsive symptoms, stress, sleep, and concentration.

Key secondary outcomes are AD-P-Extended Score, which is composed of the same items composing the P-Extended Score in adults, and precisely of AD-P-Score plus items not correlating enough to make it to P-Score, plus helplessness, loneliness, anger, obsessive-compulsive symptoms, and manic symptoms. Other key secondary outcomes are global physical health, global mental health, global health, as well as parentally rated C-GAS²¹ and PQ-LES-Q.²²

Secondary outcomes are individual psychopathology domains (anxiety, depression, post-traumatic, obsessive-compulsive, manic symptoms, mood swings, delusions, hallucinations), as well as panic, and sleep problems. Other secondary outcomes include self-injurious behaviors and suicidality (suicidal thoughts/attempts), number of episodes witnessing, enduring or perpetrating aggressive behaviors, other psychological experiences (helplessness, fear of infection, boredom, frustration, stress, cognition, anger, loneliness, substance use), other (gambling) addictive behaviors, as well as family, interpersonal, self-care functioning, social interactions, hobbies/free-time, work/school functioning, body mass index, pain, resilience, social altruism, and other daily behaviors (e.g., time spent on social media, internet, gaming, watching TV, reading, listening to music) and exercising. Ease and modality of access to care, adherence and access to medications are also asked.

COH-FIT-C&A analyses

Analyses will be run with STATA²⁵ and/or R (<https://www.R-project.org>)²⁶ with $\alpha < 0.05$. A detailed description of the general analytic plan is available elsewhere.²⁴ In addition to analyzing the child's/adolescent's responses, we will also compare the child's/adolescent's self-ratings on the PQ-LES-Q with the parental ratings of the child/adolescent and, in those who provided a household code, compare results across family members.

Briefly, to maximize representativeness of the estimates, weighting procedures will be applied. Within each country, estimates will be weighted according to official representative quota of age and sex (<https://population.un.org/wpp/Download/Standard/Population>). Furthermore, an additional adjustment

factor will be considered in key secondary outcomes by continent analyses, which will be derived by the direct comparison of representative vs non-representative estimates at continent level.

Moreover, in analyses where countries are pooled together, each country will be assigned an adjustment factor accounting for the responses/country population ratio.

The association between explanatory factors and co-primary, key secondary, and secondary outcomes will be tested with multivariable linear or logistic regression analyses (depending on outcome of interest). Backward model selection and/or LASSO will be used to select the best multivariable model²⁷, together with literature-based relevant factors. Analyses will also account for date/country matched COVID-19 metrics made available by Johns Hopkins University,¹ and restriction information drawn from survey responses and/or national/regional databases.

Finally, alternative analytic strategies will be implemented according to hypotheses to be tested.

Strengths and limitations of the COH-FIT study

Among strengths of COH-FIT are the many languages the survey is available in, collecting data also from linguistic and ethnic minorities, ensuring inclusivity. Also, collecting data in several countries across different continents allows to compare countries among each other as well as providing a global picture. Furthermore, COH-FIT assesses a wide spectrum of outcomes, going beyond mental health and has a 3-wave design, collecting also long-term data, as well as longitudinal data at the population level, despite being a cross-sectional survey. More specifically, the multi-wave design together with the continuous data collection during the entire duration of the pandemic until it is declared over by the World Health organization in wave 1, and for 12 months each in waves 2 and 3, as well as the retrospective assessment of health and functioning during the last two weeks of respondents' regular life before the pandemic can provide information on the longitudinal course of health and functioning at the population level. Main limitations include its cross-sectional design at the individual level, reliance on self-reports, limited parental report, and optional creation of the household survey that allows family-based analyses.

Preliminary participation data

Up to June 14th, 2021, overall 13,149 children and adolescents have participated in the survey (5,781 children, 7,278 adolescents). Of these, 9,155 were recruited via representative sampling (4,550 children, 4,605 adolescents). Responses have come so far from 11 countries with representative samples, namely Austria, Brazil, France, Germany, Greece, Italy, Poland, Spain, Switzerland, UK, USA, with Hungary being in the process of initiating recruitment of a representative pediatric sample, and 49 additional countries with non-probability sampling only. Such preliminary participation findings are of relevance when compared with the currently published literature on mental health outcomes of children and adolescents during the pandemic. A recent systematic

review identified only 12 studies, reporting on a total of 12,262 children and adolescents, from China (seven studies), Italy (two studies), Poland, Turkey, and United States (one study each)²⁸. Overall, COH-FIT seems to be a unique resource to collect global evidence on health and functioning of children and adolescents during the pandemic, both in non-representative and representative samples.

Conclusions

Given the magnitude and reach of the global psychosocial stressor that the COVID-19 pandemic represents, understanding and mitigating the adverse effect of the pandemic on the health and well-being of youth is crucial. The COH-FIT project is well-suited to provide an international estimate of the impact of COVID-19 on children's, adolescents' and families' mental and physical health, well-being, functioning and quality of life. Such much needed data can inform the formulation of present and future evidence-based interventions and policies to minimize detrimental effects of the present and future pandemics on youth.

Authors statement

Conflict of Interest Statement

All conflict of interest statements of all authors are detailed below in supplementary Table 1.

Author Contributions Statement

CUC, MS, designed the study. MS, CUC, AA, AE, wrote the study protocol. MS, CUC, TT, FL, QR, AI, ED designed the statistical analysis plan. All authors contributed to the final version of the COH-FIT survey and are involved in disseminating the COH-FIT survey link and collecting the data and designing and preparing research reports on national data. All local researchers contributed to and approved translations of the COH-FIT survey in their respective language. CUC, MS, ED, TT, FL, AK had access to the global raw data on participation results. CUC, MS, AA, SC and AE wrote the first draft of the paper. All authors read, contributed to and approved the final version of the manuscript.

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Funding is detailed in supplementary Table 2.

Supplementary Table 1. Conflict of interest

Country	Name, Surname	Conflict of interest
Australia	Michael Berk	MB is supported by a NHMRC Senior Principal Research Fellowship (1059660 and 1156072). MB has received Grant/Research Support from the NIH, Cooperative Research Centre, Simons Autism Foundation, Cancer Council of Victoria, Stanley Medical Research Foundation, Medical Benefits Fund, National Health and Medical Research Council, Medical Research Futures Fund, Beyond Blue, Rotary Health, A2 milk company, Meat and Livestock Board, Woolworths, Avant and the Harry Windsor Foundation, has been a speaker for Abbot, Astra Zeneca, Janssen and Janssen, Lundbeck and Merck and served as a consultant to Allergan, Astra Zeneca, Bioadvantex, Bionomics, Collaborative Medicinal Development, Janssen and Janssen, Lundbeck Merck, Pfizer and Servier – all unrelated to this work.
Australia	Scott Teasdale	ST contracts to Nutrition Research Australia. Nutrition Research Australia conducts independent research funded by government and industry bodies including Nestlé, Nutrition Australia, Cereal Partners Worldwide, Cobram Estate and Meat and Livestock Australia.
Brazil	Ary Gadelha	Ary Gadelha has been a consultant and/or advisor to or has received honoraria from Ache, Daiichi-Sankyo, Torrent, Cristália, and Janssen .Not related to this work.
Brazil	Carlos Gustavo Costardi	Carlos Gustavo Costardi has been a consultant and/or advisor to or has received honoraria from Aché and Cristália. Not related to this work.
Canada	Lakshmi N Yatham	LNy has received honoraria or research grants from Abbvie, Allergan, CANMAT, DSP, Intracellular therapies, Lundbeck, Merck, Otsuka, and Sanofi.
Chile	Nicolas Crossley	Dr. Crossley has received personal fees from Janssen, outside the submitted work.
France	Julie Bourgin	JB has received punctual support for conferences or scientific dissemination from Janssen, Eisai, Otsuka-Lundbeck.
France	Krebs Marie-Odile	MOK has received punctual support for training activities, conferences or scientific dissemination from Janssen, Eisai, Otsuka-Lundbeck..
France	Philip Gorwood	Philip Gorwood received during the last 5 years fees for presentations at congresses or participation in scientific boards from Alcediag-Alcen, Angelini, GSK, Janssen, Lundbeck, Otsuka, SAGE and Servier.
France	Pierre-Michel Llorca	Dr. Llorca has been a consultant and/or advisor to or have received honoraria from: Abbvie, Allergan, Gedeon Richter, Janssen/J&J, Lundbeck, Merck, Otsuka, Recordati, Sanofi, Takeda, and Teva. He provided expert testimony for Janssen.
Germany	Andreas Meyer-Lindenberg	<p>Prof. Meyer-Lindenberg has received consultant fees from: Boehringer Ingelheim, Elsevier, Brainsway, Lundbeck Int. Neuroscience Foundation, Lundbeck A/S, The Wolfson Foundation, Bloomfield Holding Ltd, Shanghai Research Center for Brain Science, Thieme Verlag, Sage Therapeutics, v Behring Röntgen Stiftung, Fondation FondaMental, Janssen-Cilag GmbH, MedinCell, Brain Mind Institute, Agence Nationale de la Recherche, CISSN (Catania Internat. Summer School of Neuroscience), Daimler und Benz Stiftung, American Association for the Advancement of Science, Servier International, Techspert.io</p> <p>Additionally he has received speaker fees from: Italian Society of Biological Psychiatry, Merz-Stiftung, Forum Werkstatt Karlsruhe, Lundbeck SAS France, BAG Psychiatrie Oberbayern, Klinik für Psychiatrie und Psychotherapie Ingolstadt, med Update GmbH, Society of Biological Psychiatry, Siemens Healthineers, Biotest AG, International</p>

		Society of Psychiatric Genetics
Germany	Christoph U. Correll	Dr. Correll has been a consultant and/or advisor to or have received honoraria from: Acadia, Alkermes, Allergan, Angelini, Axsome, Gedeon Richter, Gerson Lehrman Group, Indivior, IntraCellular Therapies, Janssen/J&J, LB Pharma, Lundbeck, MedAvante-ProPhase, Medscape, Merck, Mylan, Neurocrine, Noven, Otsuka, Pfizer, Recordati, Rovi, Servier, Sumitomo Dainippon, Sunovion, Supernus, Takeda, and Teva. He provided expert testimony for Janssen and Otsuka. He served on a Data Safety Monitoring Board for Lundbeck, Rovi, Supernus, and Teva. He has received grant support from Janssen and Takeda. He is also a stock option holder of LB Pharma.
Germany	Katharina Domschke	Member of the Janssen Steering Committee Neurosciences
Greece	Agorastos Agorastos	Honoraria as speaker and travel support, all unrelated to this work: Janssen-Cilag, Bausch Health, ELPEN, and Lundbeck.
Greece	Vasilios P. Bozikas	Honoraria as consultant or speaker, all unrelated to this work, from Angelini, Astra Zeneca, Eli Lilly, Elpen, Galenica, Janssen Cilag, Mylan, Lundbeck, Vianex
Hungary	Istvan Bitter	Dr. Bitter has received in the past 5 years honoraria or consultation fees outside of this work from Angelini, Eli Lilly, Gedeon Richter, Hikma Pharmaceuticals, Janssen/Janssen Cilag, Medichem Pharmaceuticals by Unilab and Sun Pharma.
Iran	Maryam Moghadasin	Dr. Maryam Moghadasin has expensed from her annual research credit (Grant) received from Kharazmi University, Iran, Tehran.
Italy	Marco Colizzi	Dr. Colizzi has been a consultant/advisor to GW Pharma Limited, outside of this work
Italy	Marco, Solmi	Dr. Solmi has received honoraria/served as a consultant/participated to advisory board for Angelini, Lundbeck.
Italy	Nicola Veronese	Dr. Veronese reports personal fees from Mylan, from IBSA, from Fidia, outside of the submitted work
Italy	Paolo Brambilla	Dr. Brambilla has participated to advisory board for Lundbeck.
Italy/UK	Paolo Fusar-Poli	Dr. Fusar-Poli has received grant fees from Lundbeck and honoraria from Lundbeck, Menarini and Angelini, outside the current work.
Japan	Shunya Kurokawa	Dr. Kurokawa has received speaker's honoraria from Dainippon-Sumitomo Pharma, Meiji-Seika Pharma and Mochida Pharmaceutical
Japan	Taishiro Kishimoto	Dr. Kishimoto has received consultant fees from Dainippon Sumitomo, Novartis, Otsuka and speaker's honoraria from Banyu, Eli Lilly, Dainippon Sumitomo, Janssen, MSD, Novartis, Otsuka and Pfizer. He has received grant support from Takeda, Dainippon-Sumitomo and Otsuka.
Kazakhstan	Saltanat Nurmagambetova	Prof. Nurmagambetova has received consultant/speaker's fees from Janssen
Poland	Igor Łoniewski	Probiotic company (Sanprobi) co-founder and shareholder.
Poland	Wojciech Marlicz	Probiotic company (Sanprobi) co-founder and shareholder; speaker fees in last 5 years from AlfaSigma; European Lifestyle Medicine Organization (ELMO) - country representative for Poland
Portugal	Pedro Morgado	P Morgado has received in the past 3 years grants, CME-related honoraria, or

		consulting fees from Angelini, AstraZeneca, Bial Foundation, Biogen, DGS-Portugal, FCT, Janssen-Cilag, Gulbenkian Foundation, Lundbeck, Springer Healthcare, Tecnimed and 2CA-Braga.
Portugal	Sofia Brissos	Sofia Brissos was Medical Affairs Manager for Janssen Portugal from 2010–2013, and has received honoraria for lectures and advisory boards for Janssen, Lundbeck, Otsuka, Jaba Recordati and Angelini. She has also had travel expenses supported by Janssen, Lundbeck, Otsuka, Jaba Recordati, and Angelini
Russia	Oleg Papsuev	Has received honoraria from Lilly, Lundbeck, Servier unrelated to his work
Spain	Antonia San José Cáceres	Dr San José Cáceres has been a consultant for Roche and is currently involved in clinical trials conducted by Servier.
Spain	Celso Arango	Dr. Arango has been a consultant to or has received honoraria or grants from Acadia, Angelini, Boehringer, Gedeon Richter, Janssen Cilag, Lundbeck, Minerva, Otsuka, Roche, Sage, Servier, Shire, Schering Plough, Sumitomo Dainippon Pharma, Sunovion and Takeda.
Spain	Covadonga M Diaz-Caneja	Dr. Díaz-Caneja holds a grant from the Spanish Ministry of Science and Innovation (JR19/00024) and has received honoraria from AbbVie, Sanofi, and Exeltis.
Spain	Eduard Vieta	EV has received grants and served as consultant, advisor or CME speaker unrelated to the present work for the following entities: AB-Biotics, Abbott, Allergan, Angelini, Dainippon Sumitomo Pharma, Ferrer, Gedeon Richter, Janssen, Lundbeck, Otsuka, Sage, Sanofi-Aventis, Sunovion, and Takeda.
Spain	Gonzalo Arrondo	Is supported by a grant from the Department of Health Planning, Evaluation and Knowledge Management, Government of Navarra, Spain (Ref. 0011-3638-2020-000010).
Spain	Mara Parellada	Dr. Parellada has been a consultant to or has received honoraria or grants from Janssen Cilag, Exeltis, Lundbeck, Roche, Sage, Servier, Servier.
Sweden	Björn Gerdle	Grant from Swedish Research Council (Vetenskapsrådet). Participation in a research project funded by Pfizer and Eli Lilly (financial compensation is paid to Lund University Hospital (Clinical registry NRS))
Sweden	Jari Tiihonen	Personal fees from the Finnish Medicines Agency (Fimea), European Medicines Agency (EMA), Eli Lilly, Janssen-Cilag, Lundbeck, and Otsuka; a member of the advisory board for Lundbeck; participation in research projects funded by grants from Janssen-Cilag and Eli Lilly to the employing institution.
Switzerland	Roland von Känel	Has received honoraria from Vifor unrelated to this work
United Kingdom	Brendon Stubbs	Brendon Stubbs has received honorarium for advisory work from ASICS Europe BV & ParachuteBH for unrelated work.
United Kingdom	Joseph Firth	JF has has received consultancy fees from ParachuteBH for a separate project
United States	Daniel Guinart	DG has has been a consultant for and/or has received speaker honoraria from Otsuka America Pharmaceuticals and Janssen Pharmaceuticals
United States	John Kane	Dr. Kane has been a consultant and/or advisor for or has received honoraria from Alkermes, Allergan, LB Pharmaceuticals, H. Lundbeck, Intracellular Therapies, Janssen Pharmaceuticals, Johnson and Johnson, Merck, Minerva, Neurocrine, Newron, Otsuka, Pierre Fabre, Reviva, Roche, Sumitomo Dainippon, Sunovion, Takeda, Teva and UpToDate and is a shareholder in LB Pharmaceuticals and Vanguard Research Group
United States	Jose Rubio	JR has received honoraria or speaker fees from TEVA, Lundbeck, royalties

		from UpToDate, research support from Alkermes
United States	Michael Sand	Employee of Boehringer Ingelheim
All other authors have no conflict of interest to declare		

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Supplementary Table 2. Funding

Country-Network	PI	Funding agency/ grant details
Denmark	Lau Caspar Thygesen	Trygfonden (ID-no.: 151903)
Germany	Christoph U. Correll	Department of Child and Adolescent Psychiatry, Psychosomatics and Psychotherapy, Charité Universitätsmedizin, Berlin, Germany
United States of America	John M. Kane, Daniel Guinart	Internal departmental funds from The Zucker Hillside Hospital
Austria	Harald Aschauer, Elena Akimova	Biopsychosocial Corporation, Vienna, Austria www.biopsyc.at
Austria	Harald Aschauer, Monika Schlögelhofer	Medizinisch-Wissenschaftlicher Fonds des Bürgermeisters der Bundeshauptstadt Wien; Project number: COVID021; (Scientific Funds of the Major of Vienna), Austria
Switzerland	Andres R Schneeberger, Christian G. Huber, Gregor Hasler, Philippe Conus, Roland von Känel	Psychiatric Services Grisons, Department of Adult Psychiatry; Universitäre Psychiatrische Kliniken Basel (UPK), University of Basel; University of Fribourg, Fribourg Network of Mental Health (RFSM); University of Lausanne, Department of Psychiatry; University Hospital Zurich, Department of Consultation-Liaison Psychiatry and Psychosomatic Medicine Andres R. Schneeberger, Christian G. Huber, Gregor Hasler, Philippe Conus, Roland von Känel, and Undine E. Lang have contributed funding from non-restricted personal grants for ethics committee approval, translation to Romansch, acquisition of a Swiss representative sample, and acquisition of participants via a letter campaign.
Spain	Gonzalo Arrondo	Department of Health Planning, Evaluation and Knowledge Management, Government of Navarra, Spain (Ref. 0011-3638-2020-000010)
ECNP	Paolo Fusar-Poli	ECNP Prevention of mental disorders and mental health promotion TWG
France	Philip Gorwood, Marie Odile Krebs, Pierre Michel Llorca	Fondation FondaMental : specific grant to support Mental Health during pandemic
Japan	Taishiro Kishimoto	Japan Science and Technology Agency (JST), CREST, Grant Number JPMJCR19F4
Bangladesh	Mohammad Golam Rabbani	The National Foundation of Mental Health of Bangladesh
Poland	Karolina Skonieczna-Żydecka	Program of the Ministry of Science and Health Education under the name of “Regional Initiative of Excellence” in 2019-2022 project number 002/RID/2018/19 amount of financing 12.000.000 PLN, Internal Funds of Pomeranian Medical University in Szczecin
Italy	Paolo Brambilla	Ministry of Health (Ricerca Corrente), UOC Psichiatria, Fondazione IRCCS Ca' Granda Ospedale Maggiore Policlinico, Milano
Italy	Marco Solmi, Angela Favaro	University of Padua, Neuroscience Department, Italy
Japan	Akihiro Takamiya	Grants for International Activities in Medicine and the Life Sciences, Keio University Medical Science Fund (grant number: 99-096-0001)
Italy	Leonardo Zoccante, Marco Colizzi	Veneto Autism Spectrum Disorder Regional Centre at the Integrated University Hospital of Verona, Italy

France	Marie Odile Krebs, J Bourgin Philip Gorwood, Pierre Michel Llorca	Institut de psychiatrie (CNRS 3557)
Poland	Karol Kamiński	Internal Funds of Medical University in Białystok
Iran	Maryam Moghadasin	University of Kharazmi, Tehran, Iran Dr. Maryam Moghadasin has expensed from her annual research credit(Grant) equal to 213180000 Rial, received from Kharazmi University, Iran, Tehran. (ID-no.:36694)
Uruguay	Cecilia Cracco, Andres Estradé	Internal research funds by the Catholic University of Uruguay
South Africa	Georgina Spies, Soraya Seedat	Stellenbosch University Special VR (RIPS) fund for Covid-19 research and innovation projects
Ireland	Evan Matthews	Waterford Institute of Technology, Research Connexions award. Total award €3,960 (2,460 allocated to COHFIT dissemination)
Cyprus	Emilia Vassilopoulou, Dimitris Efthymiou	Personal funds-Emilia Vassilopoulou & Dimitris Efthymiou
Brazil	Ary Gadelha	PROESQ - Programa de Esquizofrenia da Universidade Federal de São Paulo (UNIFESP)
Taiwan	Kuan-Pin Su	MOST 110-2321-B-006-004, 110-2811-B-039-507, 110-2320-B-039-048-MY2, and 110-2320-B-039-047-MY3 from the Ministry of Science and Technology, Taiwan; and ANHRF109-31, 110-13, and 110-26 from An Nan Hospital, China Medical University, Tainan, Taiwan.
Korea	Jun Soo Kwon, Minah Kim, Tae Young Lee	This research was supported by the Brain Research Program, and Basic Science Research Program through the National Research Foundation of Korea(NRF) funded by the Ministry of Science, ICT & Future Planning (Grant no. 2017M3C7A1029610; 2019R1A2B5B03100844; 2021R1A2C1006718).
Russia	Oleg Papsuev	Future Comes Today Charitable Foundation, Moscow, Russia
Czech Republic	Denisa Mankova	This study is a result of the research funded by the project Nr. LO1611 with a financial support from the MEYS under the NPU I program.
France	Marie-Odile Krebs, Julie Bourgin	RHU PsyCARE (ANR -18-RHUS-0014) - National Agency for Research
Thailand	Thitiporn Supasitthumrong	This project was funded by National Research Council of Thailand (N35A640035)

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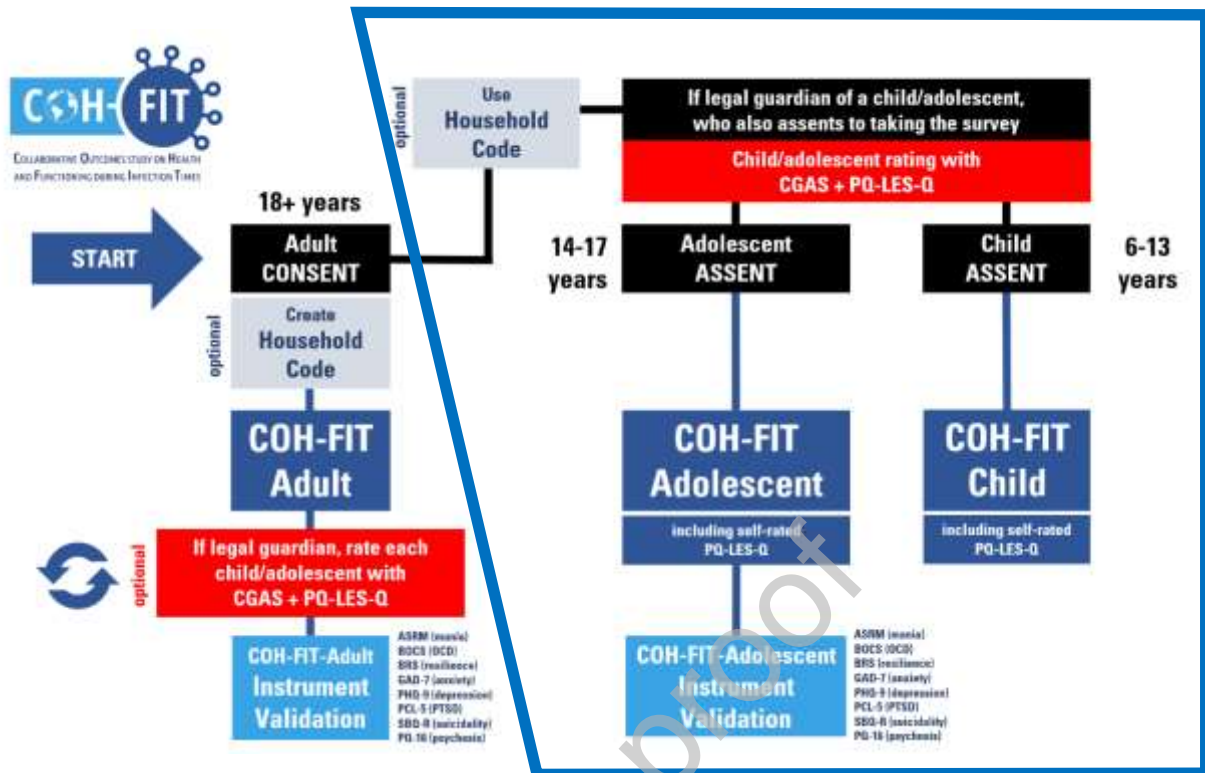
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Figure 1. COH-FIT-Adolescents and COH-FIT-Children survey flow



Legend. ASRM, Altman Self-Rating Mania Scale¹⁹; BOCS, Brief Obsessive Compulsive Scale²⁹; BRS, Brief Resilience Scale³⁰; CGAS, Children's Global Assessment Scale²¹; GAD-7, Generalized Anxiety Disorder 7-item scale¹⁶; OCD, Obsessive Compulsive Disorder; PCL-5, PTSD Checklist for DSM-5¹⁷; PHQ-9, Patient Health Questionnaire 9-item scale³¹; PQ-LES-Q, Pediatric Quality of Life Enjoyment and Satisfaction Questionnaire²²; PQ-16, Prodromal Questionnaire-16²⁰; PTSD, Post-Traumatic Stress Disorder; SBQ-R, Suicidal Behaviors Questionnaire-Revised³².